

NOAA's National Climatic Data Center

User Engagement Fact Sheet

Sector: **HEALTH**



OVERVIEW

Climate and weather events can impact human health in many ways. Climate trends, such as warming temperatures and changes in precipitation patterns, can affect the distribution of waterborne and vector-borne diseases. Weather patterns, such as heavy rains—expected to increase as climate changes—can lead to flooding, which can cause direct injuries as well as increased incidence of waterborne diseases. Poor air quality can lead to asthma and other respiratory ailments. Gradually increasing temperatures can increase the frequency and duration of stagnant air masses that allow pollution to accumulate, which will exacerbate health symptoms. Overexposure to UV radiation can increase the risk of skin cancer, and weather events such as heat waves, extreme cold, and drought often increase the rate of morbidity and mortality. Providing access to relevant climate information is essential to understanding how climate trends and weather patterns affect human health and for developing appropriate planning, adaptation, and mitigation strategies.

KEY STAKEHOLDERS

NOAA's National Climatic Data Center (NCDC) works with various groups, both as an information provider and as an applied research partner, to examine the effects of weather and climate on human health. This type of information can help decision makers and stakeholders within the health sector make practical decisions in order to adapt to climate changes and variations and to mitigate possible effects. There are many different governmental and non-governmental organizations, public and private groups and businesses, and individuals that can benefit from using relevant climate and weather-related information. Some major groups include:

- Federal government agencies, such as the Centers for Disease Control and Prevention, the National Institutes of Health, and the U.S. Environmental Protection Agency
- Physicians
- Pharmaceutical companies
- Biometeorologists
- Epidemiologists
- Hospital administrators
- Public health officials
- Academia and other researchers



SECTOR NEEDS

Climate information is often available only as raw observations or in the form of tables, graphs, or written summaries, which may be difficult for users who are not well-versed in climate science to fully interpret. To bridge this gap, NCDC is partnering with the health sector to translate climate data into accessible, useful, and accurate products; and to leverage NCDC's climate expertise to better understand what the information means and how it can be used most effectively.

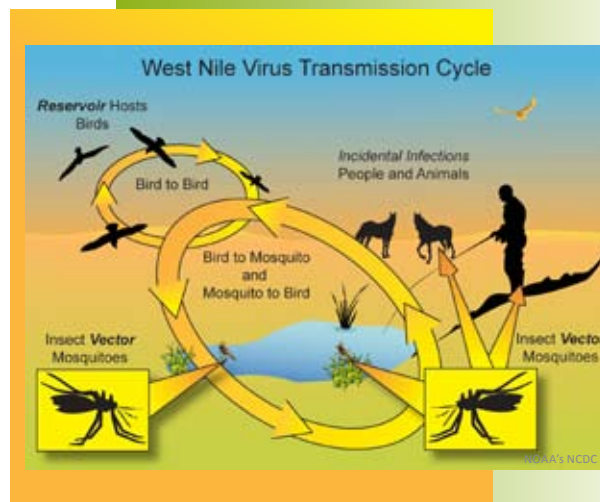
Climate information can be used in a variety of ways. Some examples include:

- Using precipitation data to investigate the relationship between increased flooding and waterborne disease outbreaks.
- Using relative humidity and wind speed data to study the relationship between fine particulate air pollution and daily mortality counts.
- Using temperature data to investigate correlations between temperature and total coliform bacterial contamination from public water drinking systems.

- Using atmospheric data to correlate sudden changes in atmospheric pressure with the rupturing of the amniotic sac during pregnancy. Studies have shown an increase in frequency of this membrane rupturing after strong cold frontal passages.

NCDC DATA AND PRODUCTS

- There are many different types of useful climate information available. Examples include:
- The *U.S. Heat Stress Index*, which is an assessment of “how hot it feels”, based on measured temperature and relative humidity.
 - The *National Integrated Drought Information System*, which is a web-based portal multi-agency collaborative system that provides information about current drought conditions and impacts, and drought forecasts, planning, education, and research.
 - The *West Nile Virus Mosquito Crossover Dates Indicator*, which provides estimates of the dates when the northern house mosquito—the primary suspect for transmission of the disease to humans—becomes the dominant species in a particular area. The peak infection rate in mosquitoes occurs about two to three weeks after the northern house mosquito becomes the dominant species, representing the period of greatest risk of transmission (in development, currently only available for Illinois).
 - CD-ROMs/DVDs, such as the *International Station Meteorological Climate Summary*, which contains climatic data summaries from thousands of weather stations around the world, and the *Integrated Surface Data* database, which contains climate information for about 10,000 weather stations, with some information dating back as far as 1901.
 - Publications, including *Storm Data* (provides monthly reports of damaging weather), *Local Climatological Data* (provides a monthly summary of daily observations), *Climatological Data* (provides annual average values), and *Comparative Climatic Data* (provides average and extreme values).



Collaboration between climate scientists and the health community is essential in helping to build the necessary bridges that will transform climate science into information that is relevant and credible. Ongoing communication is important to ensure that the information that NCDC provides is appropriate and applicable to health sector needs. As climate changes in the years ahead and the effects become more noticeable, new information needs will emerge. NCDC will work closely with this sector, attending trade meetings and sponsoring future workshops and conferences, in order to better understand, address, and anticipate these needs.

Additional details about available NOAA products and the economic benefits of these products are provided at:
<http://www.economics.noaa.gov>

For further information on obtaining climate services and products related to health from NCDC please contact:

Customer Services Branch

NOAA's National Climatic Data Center, 151 Patton Avenue,
 Asheville, NC 28801-5001

828-271-4800 • TDD 828-271-4010 • Fax 828-271-4876

E-mail: ncdc.info@noaa.gov • <http://www.ncdc.noaa.gov>



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